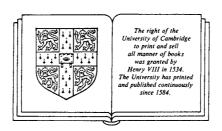
# THE GENESIS OF INDUSTRIAL CAPITAL

## A STUDY OF THE WEST RIDING WOOL TEXTILE INDUSTRY c. 1750–1850

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# THE STUDY OF CAPITAL ACCUMULATION

There has been a tendency for economic theory of the last 100 years to ignore capital accumulation altogether and to be preoccupied with analysis of the detailed relationship between the output and price of commodities. To do this, the dynamics of economic growth in the long run are ruled out by simplifying assumptions. Capital accumulation together with population growth, technological change and socio-political variables are 'held constant' whilst micro- and macro-models are constructed, based on prices, incomes and the concept of market-clearing equilibrium. With few exceptions this rules out discussion of most of the questions of fundamental interest to the economic historian. To a large extent, and of necessity econometric history has adapted this neoclassical paradigm and economic development has taken a back seat.

The overall growth of economies was the key preoccupation of Classical political economy from Smith and Ricardo to Marx. But from the late nineteenth century the marginalist revolution directed attention away from development issues. Only since the mid-1950s has economic growth re-emerged as a focus of study and then only in the work of a minority of economists and historians. Responding partly to the tenacity of Third World underdevelopment, despite capital injections, people like Robinson and Kuznets turned their attention to the role of finance in economic growth. At the same time a sequence of economic historians have attempted quantification and analysis of capital accumulation during Britain's industrialisation: Rostow, Deane, Pollard and, most recently, Feinstein.<sup>2</sup>

Revival of interest in Classical questions has brought some renewed interest in Classical theory, particularly Marxian analysis of economic development. This has produced a further set of relevant publications relating to issues such as consumption and investment ratios, 'primitive accumulation', the 'development of underdevelopment', the mainsprings of profitablity and reinvestment and the role of merchant capital in economic change.<sup>3</sup>

As a prelude to the present study it is worth surveying some of the literature of what one might call the minority traditions of economic history in recent years. Published theoretical work is, however, almost exclusively concerned with the functioning of the national economy as a whole. Thus, although it provides some useful theoretical insights, its main value here is in highlighting questions which can only properly be tackled at sectoral or regional level.

#### Capital accumulation during industrialisation

Work done in the last three decades on capital investment proportions during Britain's industrialisation has brought to the fore many questions vital to the present study. Was increasing industrial investment made at the expense of wage levels, consumption and living standards? How closely influenced was it by the distribution of landed wealth and the financial or industrial activities of landholders? What relationship did industrial finance have to mercantile investment, stockholding and credit? What role did banks and other financial institutions play? Full answers to these and other questions raised in the historiography can only be attempted by rebuilding the aggregate picture out of regional empirical studies.

The first major steps in analysing capital investment proportions were taken by Lewis and Rostow. Although based purely on a priori judgement, Rostow was quite precise with his postulate. He maintained that the 'take off' period in Britain witnessed a raising of the ratio of net investment to net national product from about 5% to over 10%.4 Rostow's hypothesis prompted a number of empirical examinations in the 1950s and 1960s, most noticeably by Deane and Habakkuk who maintained that capital was not a strategic factor in the 'take off' period, as defined by Rostow, and that only the railway age saw capital proportions reaching around the 10% level for any sustained period.<sup>5</sup> Deane's findings were supported by other empirical work on the development of industrialised countries during the last century, noticeably the research of Kuznets, Solow and Cairncross. By the mid-1960s, the accepted thinking on this topic was that changes in capital investment proportions in an economy during industrialisation were gradual. Improvements in productivity arose mainly from more efficient use of existing capital stock and from the centralisation and disciplining of a growing supply of wage labour. The industrial revolution in Britain got well into its stride with average net investment of under 10% per annum. The view that growth does not invariably, or even largely, depend on a high level of capital formation gained strength from stressing the negligible results of extensive economic aid to the Third World countries since the Second World War. Political and cultural dimensions of development theory were gaining prominence at this time.

However, the debate with respect to the British case had by no means closed. Kuznets, along with Pollard, rejuvenated the whole discussion in the late 1960s by emphasising a factor of considerable relevance to the present study. This is the important distinction between net capital formation and gross capital proportions which include current maintenance and replacement resulting from premature obsolescence of machinery and equipment. If gross figures are considered, the complexion of the debate is altered. Kuznets found 11.7% a 'not unreasonable' figure for the gross investment proportion in the early eighteenth century. This mainly resulted from the short physical life of capital goods and the larger amounts of finance spent on repairs and maintenance at a time when technological advance was relatively slow. Gross investment proportions are obviously also the most relevant figures in a period of industrial and technical change when obsolescence and replacement costs might be high.

Using such figures Pollard has concluded that the proportions of British national income which were invested in the late eighteenth and early nineteenth centuries were much higher than Deane and Cole had suggested and much closer to those postulated in the theoretical schemes of both Rostow and Lewis. 10 Feinstein's more recent estimates have still further closed the gap between empirical findings and the Lewis/Rostow hypotheses. 11 He concluded that fixed capital formation in Britan increased at a rate more than double that previously suggested by Pollard for the period 1770–1830. For c. 1830–5 Feinstein's calculations are close to those of Pollard. The differences between them regarding capital growth rates over the whole period are largely the result of Feinstein's much lower base year estimates for c. 1770 and his higher figures for the trade and manufacturing sectors particularly in the period c. 1790-1815. 12 It may well be that capital formation especially in the industrial sector has been seriously underemphasised in estimates prior to those of Feinstein. The changing rates of growth of the stock of capital as estimated by Feinstein are indicated in Table 1.1

Table 1.2 shows Feinstein's estimates of gross domestic fixed capital formation as a proportion of G.D.P. for each decade. The figures from the two tables taken together indicate that the 1830s and 1840s witnessed rapid rates of growth of the domestic fixed and reproducible capital stock. Growth rates per annum averaged more than twice that achieved in earlier decades largely because of the expansion of the capital goods industries including railways. However, gross domestic fixed capital as a proportion of G.D.P. had already risen over 10% by 1800 and then stabilised around 10–11% until after the 1850s. If overseas investments and stockbuilding are included, the trend of (total) capital formation as a proportion of G.D.P. remains the same: it rises to 1800, drops back during the unstable years of the late Napoleonic Wars and then increases once again in the 1810s stabilising around 14% until the mid-century despite a

Table 1.1 Levels and rates of growth of the stock of capital, Great Britain, 1760–1860

	Fixed capital	Domestic reproducible capital <sup>a</sup>
A. End-year levels (£m at 1851-60 prices)		
1760	490	670
1800	730	990
1830	1,180	1,510
1860	2,310	2,760
B. Growth rates (% p.a.)		
1761–1800	1.0	1.0
1801-30	1.6	1.4
1831-60	2.3	2.0
1761–1860	1.6	1.4

<sup>&</sup>quot; Fixed capital plus total circulating capital.

Source: Feinstein, in Cambridge Economic History of Europe, p. 83.

threefold rise in the annual G.D.P. at factor cost between the 1810s and 1850s.<sup>13</sup> These findings have important implications for the possible chronology of capital formation in the textile sector and, more importantly, for assessing the effects on manufacturers of competing investment demands in the rest of the economy.<sup>14</sup>

The implication which these estimates of capital investment proportions have for the classic debate about the social as well as the economic

Table 1.2 Fixed capital investment proportions, 1761-1860

Decade	Gross domestic fixed capital as a proportion of G.D.P.  (%)	Total investment as a proportion of G.D.P. <sup>a</sup>
1761–70	7	8
1771-80	7	10
1781-90	10	13
1791-1800	11	14
1801-10	10	10
1811-20	10	14
1821-30	10	14
1831-40	11	13
1841-50	11	14
1851-60	10	14

<sup>&</sup>lt;sup>a</sup> Includes overseas investment and stockbuilding.

Source: Feinstein, in Cambridge Economic History of Europe, p. 91.

costs of industrialisation is not directly addressed by Feinstein. He does, however, calculate that total factor productivity only started to rise after 1800 and even then rather slowly. <sup>15</sup> Whilst the growth of output was largely accounted for by growing inputs, wages could only rise at the expense of profits. <sup>16</sup>

Overall estimates of income and income shares are not possible before the late nineteenth century but it is beyond dispute that the relative share of national income accruing to labour fell during the period 1750-1850 and working-class consumption remained, at best, static. <sup>17</sup> According to Perkin, between 6 and 14% of the national income may have been transferred from labour to capital between 1790 and 1850. 18 To a large extent this issue can best be addressed at local or sectoral level. As Hobsbawm argued some time ago, immiserising growth may well have occurred even where national aggregate indices suggest the contrary. 19 Imperfections and rigidities in the capital market could induce this. The largest potential savers and investors were merchants and landowners who generally invested their money outside of industrial developments in government bonds and stocks or else they spent it in unproductive ways. Thus the majority of manufacturers had little access to big money. To raise finance they were forced to press harshly on labour costs which, as the West Riding experience illustrates, were the most flexible of input costs. This flexibility was facilitated by the plentiful supply of cheap labour in many industrial areas, particularly of women, children and immigrants who were so important a part of the workforce of early factory establishments and of the putting-out system.

Shapiro has suggested that the mechanics of this 'exploitation' can only be understood by examining the significance of such things as the 'long-pay', payment by tokens, the involvement of entrepreneurs in retailing and the acceptance by retailers, and other members of the local community, of the manufacturer's notes for discount. Through quasibanking, industrial employers could succeed in gaining credit not just from their immediate workforce but from the lower classes of the locality more generally.<sup>20</sup>

Feinstein's estimates highlight the rapid growth of domestic reproducible capital in the 1830s and 1840s. At the same time labour historians have rightly focussed on these decades which were characterised by intense and widespread protest. With respect to the textile trades, Foster has suggested the existence of near-revolution sparked by economic crisis: a result of technological innovation and falling unit prices of finished goods.<sup>21</sup> The extent to which labour costs were under pressure in the textile areas in particular requires further study at regional level.

Studies at regional level are essential if the working of the markets for both capital and labour are to be fully understood for any period before the late nineteenth century. The possibilities of raising industrial finance from external sources at local level conditioned the extent to which internal finance from profits was crucial. This is important in view of the fact that virtually every model of economic growth includes the need (in theory and at macro-level) to keep down wage rates in order to leave high profits for further investment. Lewis stressed that, in the British case, there was a fortunate situation of excess underemployed and unemployed labour in the agricultural sector such that industry could absorb workers without affecting the level of wages. Exindleberger agrees that this type of 'dual economy' operated in Britain in the first half of the nineteenth century. Only the sectoral and regional picture can illuminate this hypothesis as the labour market was far from nationally integrated or efficient. Much depended on the precise relationship between industry and agriculture within the industrial region itself as well as its links with outside areas of labour surplus, particularly Ireland.

Before leaving the debate about capital investment proportions during the industrial revolution, the question of circulating capital should be mentioned. Feinstein's calculations indicate that for British industry and commerce taken together the ratio of fixed to circulating capital invested changed from less than 1 to 1 (c. 1760) to more than 3 to 1 (c. 1860).  $^{24}$  In the economy as a whole, capital sunk in stockholding and work in progress declined from an average of about 20% of domestic fixed investment (1761–1800) to just under half this level (9%) in 1860.<sup>25</sup> With the more rapid turnover of capital made possible by technological change and improvements in communications, industrial and commercial organisation, the mass of circulating capital almost certainly fell per unit of goods and services produced in the economy or by the individual firm. However, there is no doubt that there was a massive absolute increase in the short-term capital employed in production and trade. Furthermore, circulating capital remained much more important than fixed investment for the vast majority of textile and other manufacturing concerns before 1850. In the wool textile sector the proportion of circulating to total capital invested in business varied from 90% down to 50% (1750–1850) depending on the type of firm and the years under consideration.<sup>26</sup> This accords well with Edwards' findings for the cotton industry and with Weatherill's research on the eighteenth-century pottery industry. Of the five firms which Edwards studied during the period 1794–1805, none had a fixed capital proportion higher than 21% of the total capital invested.<sup>27</sup> For pottery producers circulating capital was overwhelmingly more important than fixed with most manufacturers tying up a large proportion of their assets in credit extension.<sup>28</sup>

These indications of the overriding importance of circulating capital are very relevant for the present study because the sources of long- and short-term capital were often quite separate and distinct. Thus the changing ratio of fixed and circulating capital required for competitive industrial enterprise has important implications for the raising of finance

and its social and economic costs. Only by studying the experience of manufacturers in different sectors and regions can one understand how the decline in circulating capital proportions at macro-level made itself felt in the liquidity position and financial flexiblity of producers.

But precise proportions of fixed and circulating capital invested in industry may not be as relevant to the study of capital sources as they have appeared in the past. A new approach is required involving a much less rigid distinction between the two. Fixed and circulating capital were often interdependent and, to some extent, interchangeable. If the elaborate credit network which evolved in the different trades eased the manufacturers' need to tie up large sums of money in stocks, this obviously released funds for productive investment. If the domestic outworking system was gradually usurped by more centralised forms of production, partly because of the travel time and delays involved, the saving in circulating capital could be used to finance increased plant and equipment outlays. If bill-discount and short-term accommodation by banks expedited the purchase and sale of commodities, so the manufacturer could divert finance from circulation to production. If circulating capital and the influences which acted on requirements for this purpose were, in turn, major determinants of the finance available for investment in the expansion of plant and equipment, then fixed and circulating capital sources must be studied not separately, as in the past, but as an integral relationship both in the long term and through cyclical fluctuations.

The relationship between capital accumulation, economic growth and cheap labour has been a major preoccupation of historians studying the agricultural sector, the enclosure movement and the spread of rural by-employments in manufacturing. Debates concerning the interrelatedness of agrarian and industrial history have been influenced a great deal by Marxist analyses of the importance of agrarian class structure and the dispossession of agricultural labour. <sup>29</sup> Obviously, the emergence of a large mass of 'free' labour in the countryside was of prime importance in the development of industrial capitalism. It has been stressed by historians of all ideological persuasions and has received particular attention in recent work on the demographic characteristics of regions of rural manufacturing and the links between expanding domestic industries and proletarianisation.<sup>30</sup> But the precise mechanism whereby labour transfers to manufacturing production, either as a by-employment or more completely, awaits further study. Recent work has indicated the complexity of local variations in the organisational structure of domestic industry and its relationship to patterns of landholding and agrarian labour. 31 This has suggested a need for further studies of the influence of land ownership and use on both prefactory and post-factory industry at the regional level.

The concomitant development of the emergence of free labour was the

concentration of property and wealth into fewer hands. The landed and mercantile groups are regarded as being the chief recipients during the eighteenth century, their incomes inflated further by the proceeds of commercial farming and expanding overseas trade. Feinstein's estimates of changes in the national wealth by sector indicate that the proportion of national capital invested in agriculture was falling whilst it rose in all other sectors, particularly industry and commerce. But is this indicative of a real flow of wealth from land to industry and trade?

Concentrations of wealth in the hands of both landowners and merchants were not necessarily converted into capital for industrial development. The degree of separation between 'pre-industrial' and 'industrial' capital has been another focus of Marxist debate since the publication of Dobb's Studies in the Development of Capitalism in 1946. Dobb rightly pointed out that the mere piling up of wealth in seventeenth- and eighteenth-century Europe did not necessarily help the growth of capitalist production and could even have hindered the creation of wealth for productive investment by diverting consumption and investment into less productive channels.<sup>33</sup> This interpretation is to some extent supported by the evidence that new manufacturing techniques were often pioneered by small concerns and by individuals with comparatively little capital of their own. If, as evidence suggests, there was considerable enrichment of the landowning and mercantile groups, particularly in the eighteenth century, a study at sectoral level of the direct and indirect financial links between these groups and industrial enterprise would illuminate the 'dialectical relationship', posited but then neglected by Saville, between 'primitive accumulation' and the growth of capitalist industrial enterprise.<sup>34</sup>

Since the 1950s debate on the transition to capitalism many historians have stressed the importance of merchant capital and the extent to which it underpinned the whole financial basis of the period when handicraft and domestic manufacture dominated the industrial sector. The interesting question concerning the role of merchant capital is whether its immense growth in the period prior to the industrial revolution in Britain can be regarded as part of the 'process' of industrialisation or whether its predominance was symptomatic of, and tending to preserve, the older order.

The growth of a class of industrial capitalists from the ranks of the manufacturers themselves was seen by Marx to be a necessary precondition of any revolutionary transformation of production:

The transition from the feudal mode of production is two-fold. The producer becomes merchant and capitalist, in contrast to the natural agricultural economy and the guild-bound handicrafts of the medieval urban industries. This is the really revolutionary path. Or else the merchant establishes direct sway over production. However much this serves historically as a stepping stone – witness the English 17th century clothier, who brings the weavers, independent as they are,

under his control by selling their wool to them and buying their cloth – it cannot by itself contribute to the overthrow of the old mode of production, but tends rather to preserve and retain it as its precondition.<sup>35</sup>

Some historians follow Marx closely in sustaining this interpretation of the inherently conservative nature of merchant capital. The Genoveses in a recent contribution to the debate have stressed the boundaries within which economic and political progress occurred in the Old South and in eighteenth-century France: merchant capital bore fruit but the proceeds were not a source of dynamism in the progression to industrial capitalism. They endorsed the existence of societies whose social, political and ideological framework were far removed from that found in England during the same period. The sustaining this interpretation of the inherently sustained to the sustaining the same period. The sustaining this interpretation of the inherently sustaining the sustaining

A regional study is a useful way of testing various theses concerning the nature of merchant capital. What influence did the merchant sector have on the development of the production process in the wool textile industry? Was merchant capital conservative? Did merchants find it difficult to shift their horizons from high to lower liquidity ventures? If so were there ways in which merchant capital was involved in centralising and mechanising industry aside and apart from direct participation or investment? Obviously, any sectoral study must address itself to these questions. Economic choices in this area as elsewhere were steeped in well-established cultural and social attitudes and traditions. The local and hence also the national economy is impossible to analyse as a process divorced from the social and institutional environment of decision-making; an environment most clearly perceived at regional level.<sup>38</sup>

Another topic regarding industrial finance which has been a focus of interest among historians of Britain's industrialisation is the mechanics and determinants of ploughed-back profit or reinvestment. Here, cultural values and norms - the motivations, personalities and religious beliefs of the early entrepreneurs - have assumed a central place in analyses.<sup>39</sup> However, Marx and more recently Sweezy have stressed that capital accumulation and reinvestment on the part of industrialists is essentially defensive. 40 This idea removes emphasis from the entrepreneur and his psychological or religious motivation. Instead the typical innovator and reinvestor is seen as the tool of the social relations (based on individualism and competition) in which he is enmeshed and which force him to innovate on pain of elimination. This approach implies a view of profits and accumulation which contrasts with the classic analyses of the Schumpeterian risk-taker who is the dynamic catalyst of the growth process. 41 Much established thinking regarding industrialisation and after sees profits as resulting from the innovating process: hence accumulation is a derivative phenomenon associated with the quality of entrepreneurship. The Marxian view maintains that profits exist in a society with a capitalist class structure even in the absence of